



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,300	07/12/2004	Kjell Larsson	P15367-US1	8151
27045	7590	06/26/2006	EXAMINER	
ERICSSON INC. 6300 LEGACY DRIVE M/S EVR C11 PLANO, TX 75024			NGUYEN, TUAN HOANG	
			ART UNIT	PAPER NUMBER
			2618	

DATE MAILED: 06/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/501,300

Applicant(s)

LARSSON ET AL.

Examiner

Tuan H. Nguyen

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>07/12/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.
2. Claims 1-8 had been canceled per applicant's preliminary amendment filed on 07/12/2004.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanders et al. (International Publication Number WO 01/059936 A2 hereinafter, "Sanders") in view of Goldston et al. (U.S PAT. 6,400,758 hereinafter, "Goldston").

Consider claim 9, Sanders teaches a method to identify an interference source in a mobile radio network, wherein a received signal consists of a wanted signal and a number of interference signals of which one is a dominating interference signal and

where all signals include a known training sequence, method comprising the steps of: estimating the carrier and subtracting this carrier from the received signal (page 8 lines 7-29 and page 11 line 18-21); finding an identification code of a possible interference source from determined training sequence (see fig. 6 page 13 lines 22-26); determining a number of candidates from identification code, each of candidates corresponding with a certain cell and the frequencies which are disturbed (page 10 lines 11-28).

Sanders does not explicitly show that forming a remaining interference signal and correlating interference signal against known training sequences, resulting in a determined training sequence associated with the interfering signal; determining the timing offset for the frequencies used by candidates; and investigating if one or more of these frequencies have the same time offset as the interference signal, whereby the at least one candidate with the best offset matching of its frequencies in relation to other candidates is identified as the interference source.

In the same field of endeavor, Goldston teaches forming a remaining interference signal and correlating interference signal against known training sequences, resulting in a determined training sequence associated with the interfering signal (col. 7 lines 33 through col. 8 line 3); determining the timing offset for the frequencies used by candidates (col. 7 lines 55-66); and investigating if one or more of these frequencies have the same time offset as the interference signal, whereby the at least one candidate with the best offset matching of its frequencies in relation to other candidates is identified as the interference source (col. 7 lines 55-66).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, forming a remaining interference signal and correlating interference signal against known training sequences, resulting in a determined training sequence associated with the interfering signal; determining the timing offset for the frequencies used by candidates; and investigating if one or more of these frequencies have the same time offset as the interference signal, whereby the at least one candidate with the best offset matching of its frequencies in relation to other candidates is identified as the interference source, as taught by Goldston, in order to provide for identifying a training baud in a digital audio broadcasting signal.

Consider claim 10, Sanders further teaches step of forming a remaining interference signal comprises the steps of: estimating both the training sequence and the data of the received signal (page 11 lines 18-21); generating a channel model by using estimation of the training sequence and the data, channel model being used to estimate the carrier (page 11 lines 18-21); and subtracting the estimated carrier from the received signal, leaving the remaining interference signal (page 11 lines 18-21).

Consider claim 11, Sanders further teaches estimated carrier is produced by filtering the estimated bits through the channel model obtained by channel estimation (page 8 lines 2-16).

Consider claim 12, Goldston further teaches determining the time offset of the interfering signal (col. 7 lines 55-66); determining the time offset of a set of frequencies from each of candidates (col. 7 lines 55-66); and comparing the time offset of frequency set with the time offset of the identified interferer, the candidate having the frequencies which best match frequency set being identified as the interference source (col. 7 lines 34-66).

Consider claim 13, Goldston further teaches the serving cell uses a synchronization channel, and wherein the step of investigating if one or more of these signals have the same time offset as the interference signal further comprises the steps of: determining the time offset of the interfered signal relative to the synchronisation channel (col. 5 lines 30-45); and measuring the offset for all signals on candidate's frequencies in relation to synchronization channel and, if the offset so measured are the same for a number of signals on certain frequencies, these signals are assumed to have the same origin and the frequencies can be assigned to what is considered to be the interfering source (col. 5 lines 10-45).

Consider claim 14, Goldston further teaches the steps of: calculating, for a defined time and for every training sequence, the percent of interference of all samples for which the training sequence had the strongest correlation (col. 7 lines 34-49); and graphing the percent of interference for all training sequences (col. 7 lines 34-49).

Consider claim 15, Goldston further teaches for every sample, step of graphing identifies which training sequence had the strongest correlation (col. 7 lines 55-49).

Consider claim 16, Goldston further teaches to eliminate false interference source candidates, candidate cells contain different sets of frequencies, and wherein method further comprises the step of removing all cells not using the frequency set whose offset corresponds to the offset of the identified interferer (col. 5 lines 10-45).

Conclusion

5. Any response to this action should be mailed to:

Mail Stop_____ (Explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Facsimile responses should be faxed to:

(571) 273-8300

Hand-delivered responses should be brought to:

Customer Service Window

Randolph Building

401 Dulany Street

Alexandria, VA 22313

Art Unit: 2618

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan H. Nguyen whose telephone number is (571) 272-8329. The examiner can normally be reached on 8:00Am - 5:00Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Maung Nay A. can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information Consider the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan Nguyen
Examiner
Art Unit 2618


NAY MAUNG
SUPERVISORY PATENT EXAMINER